

**Grassland Bird Surveys in North Valley County and Northwest Phillips County, Montana:**

**2011 Summary**

Prepared for:

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## Introduction

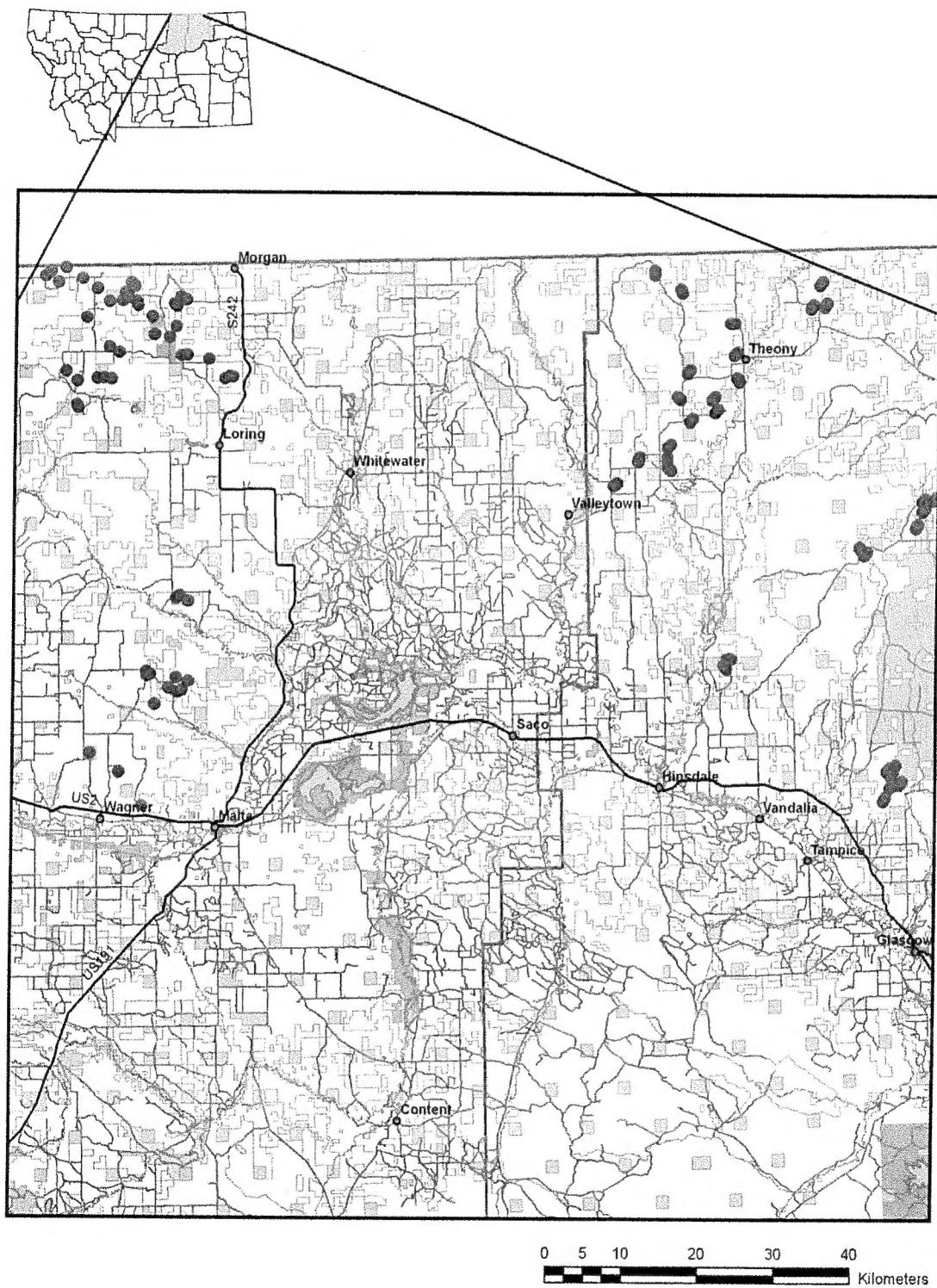
This report provides a summary of activities and results for two point-count surveys for grassland birds conducted by the Montana Natural Heritage Program during summer 2011 in north-central Montana for the Montana-Dakotas Office of the Bureau of Land Management (Figure 1). All lands in both counties on which Heritage point-count surveys were conducted are administered by the Bureau of Land Management

Points surveyed in north Valley County are from a set of 39 point-count transects (three point-counts per transect) selected in 2008 from 69 transects originally established and surveyed in 2001 (Hendricks et al. 2008). The original 69 transects were run every year during 2001-2007, the subset of 39 every year since 2007. In both the original set of transects and the subset, some transects were not sampled due to weather, accessibility, or other logistical issues. In 2011 we sampled 82% (32) of the 39 transects planned for survey.

Points surveyed in northwestern Phillips County followed the same point-count protocol as for the north Valley County survey (see Hendricks et al. 2008 for details), but the survey was part of a larger effort spread across Phillips and Valley counties to investigate the effects of grazing intensity on grassland bird abundance and habitat use. Our point locations were chosen to help fill areas where prior survey effort had been minimal to non-existent. The count protocol differed from the longer-term dataset for north Valley County in that the Phillips County points were stand-alone (isolated) rather than part of three-point transects. This was done to provide better aerial coverage of the region, given survey time-constraints and commitments to other projects. The Heritage contribution was 54 point counts to the larger survey effort of this project.

Digital photographs and vegetation data (indices of height, density, cover) associated with each point were also collected, but will not be addressed in this summary report. All data (geo-referenced points, bird counts, vegetation, photographs) have been added to the Heritage Program databases and shared with the BLM.

**Figure 1.** Map of point-count locations in 2011. Red are north Valley County points, green are northwestern Phillips County points.



## Results and Discussion

### North Valley County

**Table 1.** List of bird species detected on or flying over 100 m radius points in north Valley County, Montana during 2011; total points = 96. Species are listed in order of relative abundance of points on which detected. Montana Species of Concern are bolded.

Species (on points)	#Points	%Points	#Individuals
<b>Chestnut-collared Longspur</b>	93	97	417
Horned Lark	73	76	173
<b>Baird's Sparrow</b>	66	69	110
<b>Sprague's Pipit</b>	60	63	97
Western Meadowlark	39	41	88
<b>Grasshopper Sparrow</b>	26	27	34
<b>McCown's Longspur</b>	22	23	31
Marbled Godwit	21	22	41
Vesper Sparrow	20	21	25
Brown-headed Cowbird	19	20	50
<b>Lark Bunting</b>	18	19	53
<b>Bobolink</b>	13	14	28
<b>Brewer's Sparrow</b>	13	14	24
Savannah Sparrow	13	14	21
Wilson's Phalarope	10	10	16
Willet	9	9	13
Barn Swallow	5	5	9
Killdeer	5	5	6
Northern Pintail	5	5	7
Northern Harrier	4	4	6
Northern Shoveler	4	4	6
Eastern Kingbird	3	3	3
Mallard	3	3	4
Red-winged Blackbird	3	3	6
Brewer's Blackbird	2	2	3
<b>Long-billed Curlew</b>	2	2	2
Short-eared Owl	2	2	2
Blue-winged Teal	1	1	2
Lesser Scaup	1	1	1
Sora	1	1	1
Wilson's Snipe	1	1	1

We sampled 96 points on 32 transects in 2011. Seven transects (21 points) were not surveyed due to rain and inaccessible roads during the time we had available for doing surveys. Counts were conducted from 5 June to 12 July, when we would typically have finished them by the end of June under more favorable conditions. However, the weather in 2011 also appeared to delay onset of breeding activities by some species, so count results were not unusually biased by reduced detections due to a lack of singing. On the contrary, occupancy rates for some species, such as Baird's Sparrow and Bobolink, were high relative to other years.

We detected 31 species on or flying over the point-count circles (Table 1). We noted an additional eight species during counts that were beyond count boundaries. In order of occupancy (number of points) these eight species were Upland Sandpiper (3), Clay-colored Sparrow (2), Burrowing Owl (1), Canada Goose (1), Common Nighthawk (1), Ring-necked Pheasant (1), Swainson's Hawk (1), and Yellow-headed Blackbird (1).

Ten species occupied at least 20% of the points sampled (Table 1), with Chestnut-collared Longspur being the most prevalent; this species has had the greatest rate of point occupancy during all 11 years of surveys in north Valley County. Within the group of ten species with occupancies > 20% are five that are Montana Species of Concern (SOC) through 2011.

#### Northwestern Phillips County

We sampled 54 points in 2011; point counts were conducted during 20 June to 1 July. Our access to points was somewhat hampered by road conditions made difficult due to excessive rains and flooding in June, a situation also encountered in north Valley County.

We detected 31 species on or flying over the point-count circles (Table 2). We noted an additional seven species during counts that were beyond count boundaries. In order of occupancy (number of points) these seven species were Ring-necked Pheasant (3), Upland Sandpiper (3), American Coot (1), Canada Goose (1), Eared Grebe (1), Ring-necked Duck (1), and Sharp-tailed Grouse (1).

Seven species occupied at least 20% of the points sampled (Table 2), with Chestnut-collared Longspur being the most prevalent, as it was in north Valley County. Five of the remaining six species (Horned Lark, McCown's Longspur, Baird's Sparrow, Grasshopper Sparrow, Marbled Godwit) were also present on at least 20% of the points in north Valley County (Table 1), the exception being Lark Bunting on 20% of Phillips County points and 19% of Valley County points. Six species with occupancy rates of at least 15% are Species of Concern as of 2011 (both longspur species, Baird's Sparrow, Grasshopper Sparrow Lark Bunting, and Sprague's Pipit).

**Table 2.** List of bird species detected on or flying over 100 m radius points in northwestern Phillips County, Montana during 2011; total points = 54. Species are listed in order of relative abundance of points on which detected. Montana Species of Concern are bolded.

Species (on points)	# Points	% Points	#Individuals
<b>Chestnut-collared Longspur</b>	52	96	282
Horned Lark	48	89	119
<b>McCown's Longspur</b>	26	48	32
<b>Baird's Sparrow</b>	24	44	44
<b>Grasshopper Sparrow</b>	19	35	30
Marbled Godwit	15	28	30
<b>Lark Bunting</b>	11	20	38
<b>Sprague's Pipit</b>	10	19	19
Western Meadowlark	9	17	21
Vesper Sparrow	8	15	11
Willet	8	15	15
Northern Pintail	5	9	7
Blue-winged Teal	4	7	8
Red-winged Blackbird	4	7	6
Brewer's Blackbird	3	6	5
Brown-headed Cowbird	3	6	4
<b>Long-billed Curlew</b>	3	6	5
Wilson's Phalarope	3	6	8
Killdeer	2	4	2
Northern Shoveler	2	4	2
Savannah Sparrow	2	4	2
American Avocet	1	2	1
<b>Brewer's Sparrow</b>	1	2	1
Cliff Swallow	1	2	1
Common Grackle	1	2	1
<b>Ferruginous Hawk</b>	1	2	1
Gadwall	1	2	1
Mallard	1	2	1
Northern Harrier	1	2	1
Ring-billed Gull	1	2	1
<b>Swainson's Hawk</b>	1	2	1

Striking differences between the two counties in occupancy rates included McCown's Longspur (48% in Phillips, 23% in Valley), Baird's Sparrow (44% in Phillips, 69% in Valley), Sprague's Pipit (19% in Phillips, 63% in Valley), and Bobolink (0% in Phillips, 14% in Valley). These

results suggest less grass height and density (less precipitation?) across the landscape in Phillips County in 2011 in contrast to Valley County.

For the two counties, average number of individuals per count on points where detected was more uniform than were occupancy rates for three of the above species (Bobolink was excluded because of zero detections in Phillips County). Mean counts for McCown's Longspur were 1.2 in Phillips County and 1.4 in Valley County, for Baird's Sparrow 1.8 in Phillips and 1.7 in Valley, and for Sprague's Pipit 1.9 in Phillips and 1.6 in Valley. For the ten species with the highest occupancy rates in both counties (including Lark Bunting but excluding Brown-headed Cowbird, which had few detections in Phillips County), the mean number of individuals per occupied count in both counties was highly correlated ( $r = 0.985$ ,  $P < 0.0001$ ). Thus, the spatial distribution of each species differed more between the two counties in 2011 than their average abundances at the local scale when they occurred.

### **Reference Cited**

Hendricks, P., S. Lenard, C. Currier, B. A. Maxell, and J. Carlson. 2008. Surveys for grassland birds of the Malta Field Office-BLM, including a seven-year study in north Valley County. Report to the Bureau of Land Management. Montana Natural Heritage Program, Helena, MT. 26 pp. plus appendices.